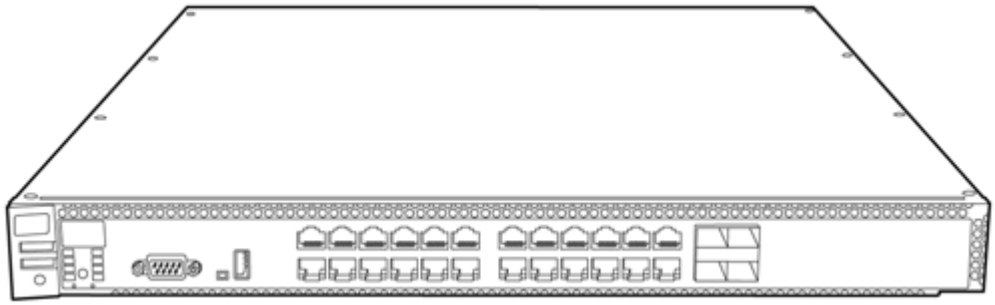
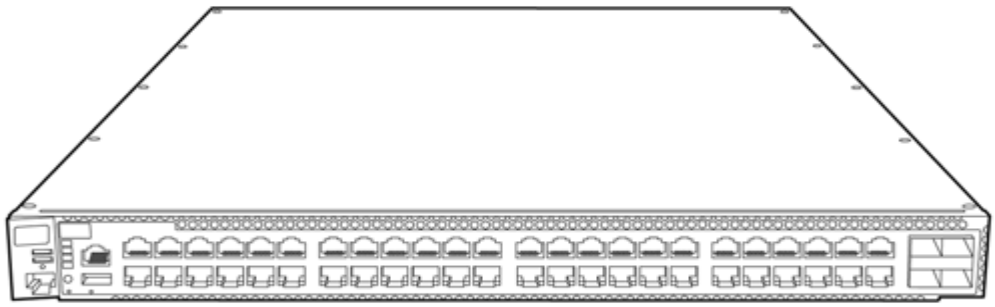
Overview



HP ProCurve 6600-24G Switch



HP ProCurve 6600-48G Switch

Models

HP ProCurve 6600-24G Switch	J9263A
HP ProCurve 6600-24G-4XG Switch	J9264A
HP ProCurve 6600-24XG Switch	J9265A
HP ProCurve 6600-48G Switch	J9451A
HP ProCurve 6600-48G-4XG Switch	J9452A

Key features

- Enhanced for data center server access layer
- Front-to-back, reversible airflow
- Redundant, hot-swappable power supplies and fans
- 64K MAC address scalability
- Consistent ProVision ASIC-based switch fabric

Overview

Introduction

The HP ProCurve 6600 Switch Series consists of the most advanced data center server edge switches in the HP Networking product line. The 6600 series includes 10/100/1000Base-T and 10-GbE SFP+ 1U rack-mount switches enhanced for server edge connectivity with front-to-back (reversible) airflow, redundant hot-swappable power, and redundant hot-swappable fans. The foundation for all of these switches is a purpose-built, programmable ProVision ASIC that allows the most demanding networking features, such as Quality of Service (QoS) and security, to be implemented in a scalable yet granular fashion. With a variety of connectivity interfaces and expanded buffering, the 6600 switches offer excellent investment protection, flexibility, and scalability, as well as ease of deployment and reduced operational expense.

Features and benefits

Industry-leading warranty*

Data center optimized

- Front-to-back airflow: designed to be co-located at the top of a server rack, the 6600 series supports front-to-back airflow (mechanically reversible) to support hot aisle/cold aisle configurations; the N+N fan tray is also hot-swappable, allowing easy replacement in the rack
- Modular internal power supplies: supports redundant, hot-swappable power supply configurations (units ship with one supply); power load is shared across dual supplies
- Server-to-switch distributed trunking: supports Layer 2 LACP groups from a single server across two different switches for active-active server NIC teaming configurations
- Power down idle ports: power down blocks of idle Gigabit and 10GbE ports to save power; idle ports can be reinitialized without rebooting; available on 6600-24XG / 48G / 48G-4XG models
- Out-of-band management: remotely monitor and manage switch via Ethernet out-of-band management port; eliminate need for terminal server network; available on 6600-24XG / 48G / 48G-4XG models
- Deployment/serviceability: data connectivity and management ports are all front-side accessible, and power supplies and fan trays are rear-side accessible to allow for easy maintenance and in-rack serviceability

Management

- Remote Intelligent Mirroring: mirrors ingress/egress ACL-selected traffic from a switch port or VLAN to a local or remote 8200zl/6600/6200yl/5400zl/3500yl switch port anywhere on the network
- RMON, XRMON, and sFlow v5: provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- Uni-Directional Link Detection (UDLD): monitors cable between two switches and shuts down the ports on both ends if the cable is broken turning the bi-directional link into uni-directional; this prevents network problems such as loops
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP): automated device discovery protocol provides easy mapping by network management applications
- Management simplicity: common networking features and CLI implementation (common across HP ProCurve 8200zl/6600/6200yl/5400zl/3500yl switches)
- Command authorization: leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail
- Friendly port names: allow assignment of descriptive names to ports
- Multiple configuration files: can be stored to the flash image
- Dual flash images: provide independent primary and secondary operating system files for backup while upgrading

Connectivity

- NEW IPv6:
  - IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge
  - Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols

Overview

  - MLD snooping: forwards IPv6 multicast traffic to the appropriate interface
  - IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding
  - IPv6 routing: supports static and OSPFv3 (requires Premium License) routing protocols
- Auto-MDIX: automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- Jumbo frames: on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services

Performance

- High-speed/capacity architecture: based on the purpose-built ProVision ASICs to provide superior system performance and scalability
- Selectable queue configurations: increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

Resiliency and high availability

- IEEE 802.3ad Link Aggregation Control Protocol (LACP) and ProCurve trunking: support up to 60 trunks, each with up to 8 links (ports) per trunk
- IEEE 802.1s Multiple Spanning Tree: provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w
- Virtual Router Redundancy Protocol (requires Premium License): VRRP allows groups of two routers to dynamically back each other up to create highly available routed environments
- Server-to-switch distributed trunking: allows a server to connect to two switches with one logical trunk that consists of multiple physical connections; enables load-balancing and increases resiliency
- Sparing simplicity: common power supplies, fan trays, and transceivers are used among the 6600 series products

Layer 2 switching

- ProCurve switch meshing: dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth
- GARP VLAN Registration Protocol: allows automatic learning and dynamic assignment of VLANs
- IEEE 802.1ad Q-in-Q (requires Premium License): increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on high-speed campus or metro network
- IEEE 802.1v protocol VLANs: isolate select non-IPv4 protocols automatically into their own VLANs

Layer 3 services

- Loopback interface address: defines an address in RIP and OSPF that can always be reachable, improving diagnostic capability
- UDP helper function: allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP
- NEW Route maps: provide more control during route redistribution; allow filtering and altering of route metrics

Layer 3 routing

- Loopback interface address: defines an address in RIP and OSPF that can always be reachable, improving diagnostic capability
- UDP helper function: allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP
- NEW Route maps: provide more control during route redistribution; allow filtering and altering of route metrics

Security

- Source-port filtering: allows only specified ports to communicate with each other

Overview

- RADIUS/TACACS+: eases switch management security administration by using a password authentication server
- Secure Shell (SSHv2): encrypts all transmitted data for secure, remote command-line interface (CLI) access over IP networks
- Port security: allows access only to specified MAC addresses, which can be learned or specified by the administrator
- MAC address lockout: prevents particular configured MAC addresses from connecting to the network
- Detection of malicious attacks: monitors 10 types of network traffic and sends a warning when an anomaly that potentially can be caused by malicious attacks is detected
- Secure FTP: allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file
- Switch management logon security: can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- Secure management access: securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
- ICMP throttling: defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic
- Virus throttling: detects traffic patterns typical of WORM-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs or bridged interfaces, without requiring external appliances
- STP BPDU port protection: blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- Dynamic IP lockdown: works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing
- DHCP protection: blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- Dynamic ARP protection: blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- USB Secure Autorun (requires HP ProCurve Manager Plus): deploys, diagnoses, and updates switch using a USB flash drive; works with a secure credential to prevent tampering
- STP Root Guard: protects root bridge from malicious attack or configuration mistakes Management Interface Wizard: helps ensure that management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB are secured to the desired level
- Access control lists (ACLs): provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on a per-VLAN or per-port basis
- Multiple user authentication methods:
  - Multiple IEEE 802.1X users per port: provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
  - Web-based authentication: authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server
  - MAC-based authentication: client is authenticated with the RADIUS server based on client's MAC address
  - Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port: switch port will accept up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- Switch CPU protection: provides automatic protection against malicious network traffic trying to shut down the switch
- Identity-driven ACL: enables implementation of a highly granular and flexible access security policy specific to each authenticated network user
- Secure Sockets Layer (SSL): encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- Security banner: displays a customized security policy when users log in to the switch

Multicast support

- IP multicast routing (requires Premium License): includes PIM Sparse and Dense modes to route IP multicast traffic
- IP multicast snooping (data-driven IGMP): automatically prevents flooding of IP multicast traffic

Quality of Service (QoS)

- Layer 4 prioritization: enables prioritization based on TCP/UDP port numbers
- Class of Service (CoS): sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ
- Bandwidth shaping:
  - Port-based rate limiting: per-port ingress/egress enforced maximum bandwidth

Overview

  - Classifier-based rate limiting: use ACL to enforce maximum bandwidth for ingress traffic on each port
  - Guaranteed minimum: per-port, per-queue egress-based guaranteed minimum bandwidth
- Advanced classifier-based QoS: classifies traffic using multiple match criteria based on L2/3/4 information; applies QoS policies such as setting priority level and rate limit to selected traffic per port or per VLAN
- Traffic prioritization: allows real-time traffic classification into eight priority levels mapped to eight queues

Warranty and support*

- ProCurve Lifetime Warranty: for as long as you own the product, with next-business-day advance replacement (available in most countries)
- Electronic and telephone support: limited electronic and telephone support is available from HP; refer to the HP website at www.procurve.com/support for details on the support provided and the period during which support is available
- Software releases: refer to the HP website at www.procurve.com/support for details on the software releases provided and the period during which software releases are available

* For as long as you own the product, with next-business-day advance replacement (available in most countries). The following hardware products have a five-year hardware warranty for the disk drive and lifetime hardware warranty (for as long as you own the product) for the rest of the module: HP ProCurve ONE Services zl Module, HP ProCurve Threat Management Services zl Module, and HP ProCurve MSM765zl Mobility Controller. The following hardware products and their related series modules have a one-year hardware warranty with extensions available: HP ProCurve Routing Switch 9300m series, HP ProCurve Switch 8100fl series, HP ProCurve Network Access Controller 800, and HP ProCurve DCM Controller. The following hardware products have a one-year hardware warranty with extensions available: HP ProCurve M111 Client Bridge, HP ProCurve MSM3xx-R Access Points, HP ProCurve MSM7xx Mobility and Access Controllers, HP ProCurve RF Manager IDS/IPS Systems, HP ProCurve MSM Power Supplies, HP ProCurve 1-Port Power Injector, HP ProCurve CNMS Appliances, and HP ProCurve MSM317 Access Device. Standalone software, upgrades, or licenses may have a different warranty duration. For details, refer to the ProCurve Software License, Warranty, and Support booklet at www.procurve.com/warranty.

HP ProCurve 6600-24G Switch (J9263A)	**Ports**	20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RS-232C DB-9 console port		
	Power supplies	2 power-supply slots includes: 1 x J9269A HP ProCurve 6600 Switch Power Supply		
	Fan tray	includes: 1 x J9271A 1 fan tray slot Fan tray supports N+N fans for added redundancy.		
	Physical characteristics	**Dimensions**	21.5(d) x 17.42(w) x 1.7(h) in. (54.61 x 44.25 x 4.32 cm) (1U height)	
		Weight	16.7 lb. (7.58 kg)	
	Memory and processor	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 256 MB compact flash, 256 MB DDR SDRAM; packet buffer size: 18 MB QDR SDRAM total (for all 1-GbE ports)		
	Mounting	Includes hardware for 2-post telco rack or equipment cabinet; horizontal surface mounting only. 6600 Series Rack Kit (J9469A) required for mounting in 4-post server/networking rack.		
	Performance	**1000 Mb Latency**	< 3.4 μs (FIFO 64-byte packets)	
		10 Gbps Latency		
		Throughput	up to 35.7 million pps (64-byte packets)	
		Routing/Switching capacity	48 Gbps	
		Switch fabric speed	48 Gbps	
		Routing table size	10,000 entries	
		MAC address table size	64,000 entries	
	Environment	**Operating temperature**	41°F to 104°F (5°C to 40°C)	
		Operating relative humidity	15% to 80% @ 104°F (40°C), non-condensing	
		Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)	
		Non-operating/ Storage relative humidity	15% to 90% @ 158°F (70°C), non-condensing	
		Alitude	up to 10000 ft. (3 km)	
		Acoustic	**Power**	71 dB
			Pressure	62.3 dB ISO 7779, ISO 9296
	Electrical characteristics	**Description**	The switch automatically adjusts to any voltage between 100-120 and 200-240 volts and either 50 or 60 Hz	

	Maximum heat dissipation	545 BTU/hr (574.98 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Idle power	128.5 W
	Power consumption	159.7 W
	Frequency	50 / 60 Hz
Notes		Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety		CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950
Emissions		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity	EN	EN 55024, CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management		HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu
Notes		When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. Gigabit 1000Base-T mini-GBIC (J8177B) is not supported on 6600 series switches.
Services		3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E) 4-year, 24x7 SW phone support, software updates (UR871E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone

(UR874E)
5-year, 24x7 SW phone support, software updates (UR875E)
3 Yr 6 hr Call-to-Repair Onsite (UW356E)
4 Yr 6 hr Call-to-Repair Onsite (UW357E)
5 Yr 6 hr Call-to-Repair Onsite (UW358E)

Refer to the HP website at www.procurve.com/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP ProCurve 6600-24G-4XG Switch (J9264A)	Ports	20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only	
		4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)	
		4 SFP+ 10-GbE ports; Duplex: full only	
		1 RS-232C DB-9 console port	
	Power supplies	2 power-supply slots includes: 1 x J9269A HP ProCurve 6600 Switch Power Supply	
	Fan tray	includes: 1 x J9271A 1 fan tray slot Fan tray supports N+N fans for added redundancy.	
	Physical characteristics	Dimensions	21.5(d) x 17.42(w) x 1.7(h) in. (54.61 x 44.25 x 4.32 cm) (1U height)
		Weight	17.2 lb. (7.8 kg)
	Memory and processor	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 256 MB compact flash, 256 MB DDR SDRAM; packet buffer size: 36 MB QDR SDRAM total (18 MB for 1-GbE & 10-GbE ports)	
	Mounting	Includes hardware for 2-post telco rack or equipment cabinet; horizontal surface mounting only. 6600 Series Rack Kit (J9469A) required for mounting in 4-post server/networking rack.	
	Performance	1000 Mb Latency	< 3.4 µs (FIFO 64-byte packets)
		10 Gbps Latency	< 2.4 µs (FIFO 64-byte packets)
		Throughput	up to 75.7 million pps
		Routing/Switching capacity	101.8 Gbps
		Switch fabric speed	105.6 Gbps
		Routing table size	10,000 entries
		MAC address table size	64,000 entries
	Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
		Operating relative humidity	15% to 80% @ 104°F (40°C), non-condensing

	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)	
	Non-operating/ Storage relative humidity	15% to 90% @ 149°F (65°C), non-condensing	
	Alitude	up to 10,000 ft. (3 km)	
	Acoustic	Power	68 dB
		Pressure	59.5 dB ISO 7779, ISO 9296
Electrical characteristics	Achieved Miercom Certified Green Award		
	Description	The switch automatically adjusts to any voltage between 100-120 and 200-240 volts and either 50 or 60 Hz	
	Maximum heat dissipation	697 BTU/hr (735.33 kJ/hr)	
	Voltage	100-120 / 200-240 VAC	
	Idle power	167.6 W	
	Power consumption	204.3 W	
	Frequency	50 / 60 Hz	
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.		
Safety	CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950		
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A		
Immunity	EN	EN 55024, CISPR 24	
	ESD	IEC 61000-4-2	
	Radiated	IEC 61000-4-3	
	EFT/Burst	IEC 61000-4-4	
	Surge	IEC 61000-4-5	
	Conducted	IEC 61000-4-6	
	Power frequency magnetic field	IEC 61000-4-8	
	Voltage dips and interruptions	IEC 61000-4-11	
	Harmonics	EN 61000-3-2, IEC 61000-3-2	
	Flicker	EN 61000-3-3, IEC 61000-3-3	
Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu		
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. Gigabit 1000Base-T mini-GBIC (J8177B) is not supported on 6600 series switches.		
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E)		

			3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E) 4-year, 24x7 SW phone support, software updates (UR871E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR874E) 5-year, 24x7 SW phone support, software updates (UR875E) 3 Yr 6 hr Call-to-Repair Onsite (UW356E) 4 Yr 6 hr Call-to-Repair Onsite (UW357E) 5 Yr 6 hr Call-to-Repair Onsite (UW358E) Refer to the HP website at www.procurve.com/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
HP ProCurve 6600-24XG Switch (J9265A)	Ports		24 SFP+ 10-GbE ports; Duplex: full only 1 RJ-45 serial console port 1 RJ-45 out-of-band management port
	Power supplies		2 power-supply slots includes: 1 x J9269A HP ProCurve 6600 Switch Power Supply
	Fan tray		includes: 1 x J9271A 1 fan tray slot Fan tray supports N+N fans for added redundancy.
	Physical characteristics	Dimensions	25.25(d) x 17.42(w) x 1.7(h) in. (64.14 x 44.25 x 4.32 cm) (1U height)
		Weight	19.7 lb. (8.94 kg)
	Memory and processor		Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 1 GB compact flash, 256 MB DDR SDRAM; packet buffer size: 108 MB QDR SDRAM total (for all 10-GbE ports)
	Mounting		Includes hardware for 2-post telco rack or equipment cabinet; horizontal surface mounting only. 6600 Series Rack Kit (J9469A) required for mounting in 4-post server/networking rack.
	Performance	1000 Mb Latency	
		10 Gbps Latency	< 2.4 μs (FIFO 64-byte packets)
		Throughput	up to 240.2 million pps (64-byte packets)
		Routing/Switching capacity	322.8 Gbps
		Switch fabric speed	345.6 Gbps
		Routing table size	10,000 entries

	MAC address table size	64,000 entries	
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)	
	Operating relative humidity	15% to 80% @ 104°F (40°C), non-condensing	
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)	
	Non-operating/ Storage relative humidity	15% to 90% @ 149°F (65°C), non-condensing	
	Alitude	up to 10000 ft. (3 km)	
	Acoustic	Power	72 dB
		Pressure	61.8 dB ISO 7779, ISO 9296
Electrical characteristics	Achieved Miercom Certified Green Award		
	Description	The switch automatically adjusts to any voltage between 100-120 and 200-240 volts and either 50 or 60 Hz	
	Maximum heat dissipation	1382 BTU/hr (1458.01 kJ/hr)	
	Voltage	100-120 / 200-240 VAC	
	Idle power	344.6 W	
	Power consumption	405.4 W	
	Frequency	50 / 60 Hz	
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.		
Safety	CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950		
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A		
Immunity	EN	EN 55024, CISPR 24	
	ESD	IEC 61000-4-2	
	Radiated	IEC 61000-4-3	
	EFT/Burst	IEC 61000-4-4	
	Surge	IEC 61000-4-5	
	Conducted	IEC 61000-4-6	
	Power frequency magnetic field	IEC 61000-4-8	
	Voltage dips and interruptions	IEC 61000-4-11	
	Harmonics	EN 61000-3-2, IEC 61000-3-2	
	Flicker	EN 61000-3-3, IEC 61000-3-3	
Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu		
Notes			

	Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E) 4-year, 24x7 SW phone support, software updates (UR871E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR874E) 5-year, 24x7 SW phone support, software updates (UR875E) 3 Yr 6 hr Call-to-Repair Onsite (UW356E) 4 Yr 6 hr Call-to-Repair Onsite (UW357E) 5 Yr 6 hr Call-to-Repair Onsite (UW358E) Refer to the HP website at www.procurve.com/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
HP ProCurve 6600-48G Switch (J9451A)	Ports	44 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RJ-45 serial console port 1 RJ-45 out-of-band management port
	Power supplies	2 power-supply slots includes: 1 x J9269A HP ProCurve 6600 Switch Power Supply
	Fan tray	includes: 1 x J9271A 1 fan tray slot Fan tray supports N+N fans for added redundancy.
	Physical characteristics	Dimensions: 25.25(d) x 17.42(w) x 1.7(h) in. (64.14 x 44.25 x 4.32 cm) (1U height) Weight: 19 lb. (8.62 kg)
	Memory and processor	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 1 GB compact flash, 256 MB DDR SDRAM; packet buffer size: 36 MB QDR SDRAM total (for all 1-GbE ports)
	Mounting	Includes hardware for 2-post telco rack or equipment cabinet; horizontal surface mounting only. 6600 Series Rack Kit (J9469A) required for mounting in 4-post server/networking rack.

Technical Specifications

Performance	1000 Mb Latency	< 3.4µs (FIFO 64-byte packets)
	10 Gbps Latency	
	Throughput	up to 71.4 million pps (64-byte packets)
	Routing/Switching capacity	96 Gbps
	Switch fabric speed	96 Gbps
	Routing table size	10,000 entries
	MAC address table size	64,000 entries
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	15% to 80% @ 104°F (40°C), non-condensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 90% @ 158°F (70°C), non-condensing
	Alitude	up to 10,000 ft. (3 km)
	Acoustic	Power: 71.8 dB, Pressure: 64.5 dB ISO 7779, ISO 9296
Electrical characteristics	Description	The switch automatically adjusts to any voltage between 100-120 and 200-240 volts and either 50 or 60 Hz
	Maximum heat dissipation	713 BTU/hr (752.21 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Idle power	180 W
	Maximum power rating	209 W
	Frequency	50 / 60 Hz
	Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	EN	EN 55024, CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8

	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
	Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu
	Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. Gigabit 1000Base-T mini-GBIC (J8177B) is not supported on 6600 series switches.
	Services	3-year, 4-hour onsite, 13x5 coverage for hardware (H4496E) 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319E) 3-year, 24x7 SW phone support, software updates (UE264E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR884E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR885E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR886E) 4-year, 24x7 SW phone support, software updates (UR887E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR888E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR889E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR890E) 5-year, 24x7 SW phone support, software updates (UR891E) 3 Yr 6 hr Call-to-Repair Onsite (UW365E) 4 Yr 6 hr Call-to-Repair Onsite (UW366E) 5 Yr 6 hr Call-to-Repair Onsite (UW367E) Refer to the HP website at www.procurve.com/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.
HP ProCurve 6600-48G-4XG Switch (J9452A)	Ports	48 RJ-45 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only 4 SFP+ 10-GbE ports; Duplex: full only 1 RJ-45 serial console port 1 RJ-45 out-of-band management port
	Power supplies	2 power-supply slots includes: 1 x J9269A HP ProCurve 6600 Switch Power Supply

Fan tray	includes: 1 x J9271A 1 fan tray slot Fan tray supports N+N fans for added redundancy.	
Physical characteristics	Dimensions	25.25(d) x 17.42(w) x 1.7(h) in. (64.14 x 44.25 x 4.32 cm) (1U height)
	Weight	19 lb. (8.62 kg)
Memory and processor	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 1 GB compact flash, 256 MB DDR SDRAM; packet buffer size: 72 MB QDR SDRAM total (36 MB for 1-GbE & 10-GbE ports)	
Mounting	Includes hardware for 2-post telco rack or equipment cabinet; horizontal surface mounting only. 6600 Series Rack Kit (J9469A) required for mounting in 4-post server/networking rack.	
Performance	1000 Mb Latency	< 3.4 µs (FIFO 64-byte packets)
	10 Gbps Latency	< 2.4 µs (FIFO 64-byte packets)
	Throughput	up to 130.9 million pps (64-byte packets)
	Routing/Switching capacity	176 Gbps
	Switch fabric speed	176 Gbps
	Routing table size	10,000 entries
	MAC address table size	64,000 entries
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	15% to 80% @ 104°F (40°C), non-condensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 90% @ 158°F (70°C), non-condensing
	Alitude	up to 10,000 ft. (3 km)
	Acoustic	Power: 71.8 dB, Pressure: 63.4 dB ISO 7779, ISO 9296
Electrical characteristics	Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
	Maximum heat dissipation	890 BTU/hr (938.95 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Idle power	226 W
	Maximum power rating	261 W
	Frequency	50 / 60 Hz
	Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped),

		100% traffic, all ports plugged in, and all modules populated.
Safety	CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	EN	EN 55024, CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu	
Notes		
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (H4496E) 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319E) 3-year, 24x7 SW phone support, software updates (UE264E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR884E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR885E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR886E) 4-year, 24x7 SW phone support, software updates (UR887E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR888E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR889E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR890E) 5-year, 24x7 SW phone support, software updates (UR891E) 3 Yr 6 hr Call-to-Repair Onsite (UW365E) 4 Yr 6 hr Call-to-Repair Onsite (UW366E) 5 Yr 6 hr Call-to-Repair Onsite (UW367E) Refer to the HP website at www.procurve.com/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	

Standards and protocols (applies to all products in	Device management RFC 1591 DNS (client)

series) HTML and telnet management

General protocols
IEEE 802.1ad Q-in-Q (Premium License)
IEEE 802.1AX-2008 Link Aggregation
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 2548 (MS-RAS-Vendor only)
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 3768 VRRP (Premium License)
RFC 4675 RADIUS VLAN & Priority
UDLD (Uni-directional Link Detection)

IP multicast
RFC 3376 IGMPv3 (host joins only)
RFC 3973 Draft 2 PIM Dense Mode (Premium License)
RFC 4601 Draft 10 PIM Sparse Mode (Premium License)

IPv6
RFC 1981 IPv6 Path MTU Discovery
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 Specification
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client and relay)
RFC 3484 Default Address Selection for IPv6
RFC 3587 IPv6 Global Unicast Address Format

RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4291 IP Version 6 Addressing Architecture
RFC 4293 MIB for IP
RFC 4294 IPv6 Node Requirements
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 5340 OSPFv3 for IPv6 (Premium License)
RFC 5453 Reserved IPv6 Interface Identifiers
RFC 5722 Handling of Overlapping IPv6 Fragments

MIBs
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 1850 OSPFv2 MIB
RFC 2021 RMONv2 MIB
RFC 2096 IP Forwarding Table MIB
RFC 2613 SMON MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

OSPF
RFC 2328 OSPFv2 (Premium License)
RFC 3101 OSPF NSSA
RFC 5340 OSPFv3 for IPv6 (Premium License)

QoS/Cos
RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2865 RADIUS (client only)
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

Accessories

Modules	HP ProCurve 6600 Switch Fan Tray	J9271A
Mounting Kit	HP ProCurve 6600 Series Rack Mount Kit	J9469A
	HP ProCurve 6600 Series Air Plenum Kit	J9480A
	HP ProCurve 6600-24G/24G-4XG Air Plenum	J9481A
Transceivers	HP ProCurve 100-FX SFP-LC Transceiver	J9054B
	HP ProCurve 100-BX-D SFP-LC Transceiver	J9099B
	HP ProCurve 100-BX-U SFP-LC Transceiver	J9100B
	HP ProCurve 10-GbE SFP+ SR Transceiver	J9150A
	HP ProCurve 10-GbE SFP+ LR Transceiver	J9151A
	HP ProCurve 10-GbE SFP+ LRM Transceiver	J9152A
	HP ProCurve Gigabit-LH-LC Mini-GBIC	J4860C
	HP ProCurve Gigabit-SX-LC Mini-GBIC	J4858C
	HP ProCurve Gigabit-LX-LC Mini-GBIC	J4859C
	HP ProCurve 1000-BX-D SFP-LC Mini-GBIC	J9142B
	HP ProCurve 1000-BX-U SFP-LC Mini-GBIC	J9143B
Power Supply	HP ProCurve 6600 Switch Power Supply	J9269A
Cables	HP ProCurve 10-GbE SFP+ 1m Direct Attach Cable	J9281B
	HP ProCurve 10-GbE SFP+ 3m Direct Attach Cable	J9283B
	HP ProCurve 10-GbE SFP+ 7m Direct Attach Cable	J9285B
	HP ProCurve 10-GbE XFP-SFP+ 1m Direct Attach Cable	J9300A
	HP ProCurve 10-GbE XFP-SFP+ 3m Direct Attach Cable	J9301A
	HP ProCurve 10-GbE XFP-SFP+ 5m Direct Attach Cable	J9302A
	NEW HP .5 m Multimode OM3 LC/LC Optical Cable	AJ833A
	NEW HP 1 m Multimode OM3 LC/LC Optical Cable	AJ834A
	NEW HP 2 m Multimode OM3 LC/LC Optical Cable	AJ835A
	NEW HP 5 m Multimode OM3 LC/LC Optical Cable	AJ836A
	NEW HP 15 m Multimode OM3 LC/LC Optical Cable	AJ837A
	NEW HP 30 m Multimode OM3 LC/LC Optical Cable	AJ838A
	NEW HP 50 m Multimode OM3 LC/LC Optical Cable	AJ839A

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